

We claim:

1. A method to determine a time domain equalized signal-to-noise ratio of a mass storage device, the method comprising the steps of:

- 5 (a) retrying verification of read data at a phase level; and
 (b) retrying a time domain equalized signal-to-noise ratio at a global level.

2. The method of claim 1, wherein the retrying step (a) further comprises the steps of:

- 10 (a)(1) verifying all phases of the read data;
 (a)(2) determining a qualification of all phases of the read data; and
 (a)(3) determining exhaustion of phase level retry.

3. The method of claim 1, wherein the retrying step (b) further comprises the steps of:

- 15 (b)(1) comparing the time domain equalized signal-to-noise ratio to a predetermined threshold; and
 (b)(2) determining the exhaustion of global level retry.

- 20 4. The method of claim 1, wherein the method further comprises the steps of:
 (c) filling a write buffer of the mass storage device with data, the data having a pseudo-random pattern;
 (d) setting a read channel of the mass storage device to output sampled analog-to-digital converted data to a NRZ bus of the mass storage device;
 (e) writing the write buffer to a media of the mass storage device; and
 (f) reading all phases of the data stored on the media, yielding read data.

25 5. The method of claim 4, wherein the filling step (c) is performed after the setting step (d).

6. The method of claim 4, wherein the filling step (c), the setting step (d), and writing step (e) and the reading step (f) are performed after the retrying step (a).

5 7. The method of claim 4, wherein the method further comprises the step of:
(g) calculating a time domain equalized signal-to-noise ratio from the read data.

8. The method of claim 7, wherein the calculating step (g) is performed after the retrying step (a), and before the retrying step (b).

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9. The method of claim 7, wherein the method further comprises the step of:
(h) determining that the mass storage device passed or failed.

15 10. The method of claim 1, wherein the mass storage device further comprises a disc drive.

11. An disc drive to perform a manufacturing quality assurance pass/fail test on an electronic device, the disc drive comprising:

a base;

20 a disc rotatably attached to the base;

an actuator for carrying a transducer head in a transducing relation with respect to the disc; and

a disc drive controller, communicatively coupled to the actuator, which further includes:

a determiner of a time domain equalized signal-to-noise ratio of the disc,
the disc drive controller operably coupled to the disc.

25 12. The disc drive of claim 11, wherein the determiner further comprises a determiner implemented in firmware.

13. The disc drive of claim 11, wherein the determiner of a time domain equalized signal-to-noise ratio further comprises:

- a phase level retrier; and
- a global level retrier, operably coupled to the phase level retrier.

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14. The disc drive of claim 13, wherein the phase level retrier further comprises:

- a read data phase verifier;
- a qualification determiner, operably coupled to the global level retrier; and
- a phase level completion determiner, operably coupled to the qualification determiner.

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15. The disc drive of claim 14, wherein the global level retrier further comprises:

- an ESNR threshold determiner; and
- a global level completion determiner, operably coupled to the ESNR threshold determiner.

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20. 16. The disc drive of claim 11, wherein the disc drive further comprises a magnetic disc drive.

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17. The disc drive of claim 11, wherein the disc drive further comprises an optical disc drive.

25. 18. A method to test a mass storage device, the method comprising the steps of:

- (a) downloading ESNR determining firmware to a memory of the mass storage device;
- (b) determining an ESNR value of the recording medium of the mass storage device, by performing the ESNR determining firmware; and
- (c) determining rejection or acceptance of the recording medium of the mass storage device, from the ESNR value.

19. The method of claim 18, wherein the determining step (b) further comprises:
(b)(1) performing the ESNR determining firmware, yielding an ESNR value.

5 20. The method of claim 18, wherein the mass storage device further comprises a disc
drive.

10 21. An information handling system comprising:
a base;
a disc rotatably attached to the base;
an actuator assembly movably attached to the base the actuator assembly further
comprising a voice coil attached to the actuator assembly;
a processor operably coupled to the actuator; and
a means operative on the processor to determine phase level retry and global level
retry of an equalized signal-to-noise-ratio of the disc.

15 22. The information handling system of claim 21, wherein the means further
comprises:

20 a phase level retrier; and
a global level retrier, operably coupled to the phase level retrier.

25 23. The information handling system of claim 21, wherein the phase level retrier
further comprises:

a read data phase verifier;
a qualification determiner, operably coupled to the read data phase verifier; and
a phase level completion determiner, operably coupled to the qualification
determiner.

24. The information handling system of claim 21, wherein the global level retrier further comprises:
- an ESNR threshold determiner; and
 - a global level completion determiner, operably coupled to the ESNR threshold determiner.

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